ART. XIV.—*The Diagnosis of Surgical Cancer.* By JOHN ZACHARIAH LAURENCE, F. R. C. S., M. B. Lond. Second edition. London: John Churchill, 1858. 8vo. pp. 126.

No subjects command greater interest at the present time than cancer and tubercle. Upon none is professional opinion more divided. The most opposite views are entertained as to the essential nature of these new formations, as to their heterologous or homologous character, the causes determining their occurrence, the legitimate means of diagnosis, and above all, as to the possibility of successful treatment. The subject of the little work before us, therefore, commands for it at once ready attention. It does not profess to be a systematic treatise upon cancer, but is limited to the question of diagnosis, and especially as applied to those cases in which the presence of an external tumour brings the disease under the charge of the surgeon.

The term cancer is employed by the author in its broadest sense, to signify the whole class of carcinomatous diseases. Applying this term to the group, or, as he designates it, "the genus," he discriminates the following "species:" 1. Scirrhus. 2. Encephaloid. 3. Melanotic cancer. 4. Villous cancer. 5. Osteoid cancer. 6. Colloid cancer. After a number of illustrative cases, referring especially to melanotic, villous, and osteoid cancer, the second chapter proceeds to present the data on which a diagnosis is to be based, considering the first two species as typical.

The data which will justify an accurate diagnosis and a wise prognosis, are to be sought: 1. In the presence or absence of the so-called predisposing and exciting causes; and 2, in the *symptoms of the case;* which are classed under the following heads: A. *Special previous history.* B. *Condition of patient when first brought under observation.* C. *Anatomy of the tumour.*

With regard to the predisposing causes, the first discussed is the question of *hereditary influence.* The doctrines entertained by Mr. Laurence on this subject can readily be gathered from a few quotations.

"The popular idea is, as medical practitioners must be well aware, that hereditary predisposition exercises an unusually baneful influence in the production of cancer;" but, "on the whole, I am inclined to regard this particular in the ætiology of cancer as of little or no value in a diagnostic point of view."

The following summary is presented, subsequently to a very interesting tabular statement of the "comparative mortality of cancer and phthisis in London in the years 1845 to 1850:" "Hence the average annual mortality in London from cancer in both sexes, from the age of 25 to 80, and from phthisis from the age of 5 to 65, is respectively 796.5 and 6040; and the ratio of the average mortality of cancer to phthisis is 1—7.5. Now I contend that, if cancer is less than one-seventh as fatal as phthisis, this fact alone is sufficient to render it highly probable that *cancer, as a rule, is not an hereditary disease.*"

Nevertheless, "that an hereditary taint *does* sometimes exist cannot possibly be denied." "M. Lebert states that 'he sought with much care for hereditary predisposition in 102 cases, and found it in 14 of these patients.' In 49 cases, which I have observed myself, and in which I have specially noted the point, I find 7 cases of an apparent hereditary predisposition to cancer." "This proportion is too small to establish the hereditary nature of cancer." Yet, small as it is, it must be received with caution; for "the bare statement of a patient that one of his relatives died of cancer, is not sufficient evidence to the pathologist that such was really the case."

Having thus decided to reject the question of hereditary influence as an element in forming a diagnosis, the question of the influence of SEX is next discussed, and while admitting that the large majority of cases occur in females, yet regarding this to be due to the fact that the female breast and the uterus are favourite seats of cancer, the doctrine is propounded that, "however significant the influence of sex may be in the natural history of cancer, its diagnostic value becomes entirely lost."

Age, on the other hand, is regarded as an important element in the diagnosis, provided it be considered in connection with the *locality* of the tumour. "Supposing we are told that a female has a *tumour in the breast*, and nothing more; from this we can infer nothing. Supposing, again, we are told a female with a tumour *somewhere* is aged fourteen: from this we can infer nothing. But let us be told that that 'somewhere' is in the *breast*, and we at once, *exteris puribus*, derive a most important conclusion, viz: that the chances of the tumour being of a cancerous nature are infinitely small."

"The *previous health* of the patient gives us but little information. As a rule, it will be found that cancerous patients have been otherwise remarkably free from disease." In this connection the vexed issue of the possible coexistence of cancer and tubercle is discussed, and while the opinion is expressed that this complication is rare, the details of three cases are given in which the coexistence is stated to have been observed by Mr. Laurence.

The *exciting causes*, so called, are considered to be too equivocally established to be of any value in forming a diagnosis. With regard to the "*special previous history*," attention is first drawn to the *progress of the growth*. Malignant tumours, as a rule, grow more rapidly than benignant. But if too much stress be laid upon this fact, it will mislead; for while some innocent tumours run a very rapid course, some cancers progress very slowly.

Loss of flesh, which, "with exhausting sweats, derangement of the digestive organs, and a peculiar waxy tint of the countenance, form together the principal elements of the so-called 'cancerous cachexia,'" is often wanting; "in the early stages of their disease, patients often preserve their embonpoint in all its integrity."

As to the condition of the patient when first brought under observation, the "*local phenomena*" naturally demand the first consideration. Scirrhus and encephaloid receive separate consideration in this connection. The stony hardness, smaller size, and nodulated surface of scirrhus, its comparative fixedness, the dimpling and discoloration of the skin, &c. &c., are here discussed. The greater bulk and "elastic resilient feel" of encephaloid are insisted upon; and some curious cases are given illustrating the possibility of confounding a softened encephaloid with an abscess, and *vice versa*. "This is a less dangerous error than its reverse, that of taking an abscess for a tumour." "Roux, Sir Astley Cooper, Liston, have all done it, and I have myself seen a breast amputated for a supposed tumour, which turned out after the operation to be only a small chronic abscess." We fully agree with Mr. Laurence in the practical deduction, that the use of the grooved needle should always precede the knife, except in the most palpable cases.

As the disease progresses the tumour presents at some point the cancerous ulcer or fungus, the characters of which are next discussed, with some remarks on the tendency of malignant growths to slough. A few paragraphs referring to hemorrhage, pain of an intermittent character, and the enlargement of neighbouring lymphatic glands, complete the chapter, and with it the survey of the clinical facts which bear on the diagnosis of external cancer.

The third chapter is devoted to *the anatomy of cancer*, in which, after a short survey of the appearances presented to the naked eye, the question of the microscopic characters or minute anatomy of the growths is discussed. And here, indeed, is the vexed question in the diagnosis of cancer; some rejecting minute structure altogether as of no value in a diagnosis, others admitting the importance of a study of the minute anatomy of the growth, but variously divided as to the characters on which an opinion is to be based. Mr. Laurence appears fully aware of the real value of the microscope in these cases: "That it IS a material aid in the solution of the nature of doubtful cases," he says, "cannot well be denied."

The value of minute structure admitted, the question at once presents itself, What anatomical details shall be relied upon as indicating the cancerous nature of the growth?

We are disposed to think, after a careful perusal of this work, that the author has hitherto chiefly directed his attention to the elementary forms observable in these growths, neglecting almost totally the question of the secondary grouping of the form elements. He gives, in his neat plates, numerous drawings of cells and nuclei, but no *sections* of either scirrhus or encephaloid. In view of this, his opinions on the question of microscopical diagnosis appear to us the inevitable sequence of the facts in his possession. But we believe that he would perhaps modify them much, should he turn his attention to the study of thin sections.

Without intending to insist upon it as specific, he still retains the faulty term "cancer-cell." A term which, bad as it is, we quite agree with him is far better than such technical expressions as "Thnetoblast," proposed by M. Robin, or "Macrocyte," suggested by M. Léopold Ollier.

The characters assigned to the cancer-cell are those so often reiterated. The variable size, shape, and granular appearance of the cell, with the large, sharply-outlined single, double, or plural nucleus, and the bright, large, single or plural nucleolus, upon the *vesicular* character of which M. Ollier has laid such stress.

The cell is occasionally filled with fat-globules, and transformed into a granular mass of variable size or shape. Bodies of this kind are found more or less abundantly in most cancers. Free nuclei frequently exist, and may compose the whole of a growth. Bundles of connective tissue are often observed, and the above elements, with fat-globules, the debris of disintegrated tissue, and *fibro-plastic* cells (by which the author implies the cells of developing white fibrous tissue), constitute the elements of the so-called "cancer-field."

He considers that it is upon the presence of these elements, but especially upon the presence of the so-called "cancer-cell," that a diagnosis is to be founded. "In the greater number of cases of cancerous tumours the so-called cancer-cell will be found." At the same time, he is perplexed with the further fact, which indeed is inexplicable from his stand-point, "that this form of cell is occasionally seen in growths manifestly innocent."

The grand question of the homology or heterology of cancer, commanding rapidly so much attention, is, of course, beyond the province of a work devoted exclusively to diagnosis. We are, however, pleased to observe in these pages passages which indicate a vast progress beyond the old idea of heterologous structure. Especially do we refer to the statement of Mr. Laurence, that he has observed a full series of transition forms between the "typical cancerous and typical fibro-plastic cells." A series of such forms are figured in the plates. The significance of this fact is not lost upon our author, who propounds in connection with it the following proposition :—

"*That there do exist cell-forms, which it is difficult or impossible to refer either to the cancerous or fibro-plastic type exclusively;* and, as a corollary, *That the existence of such forms brings us to the conclusion, that the two forms of cell cannot but be regarded as the extreme links of a chain of forms connected by intermediate stages.*"

It would appear to us that the facts proclaimed in this proposition are in themselves alone sufficient to overturn the doctrine of heterology so long taught in connection with cancerous growths, and although Mr. Laurence does not enter into this discussion, yet his views can be inferred when we find him state that the facts above propounded are "in conformity with the unity of natural products;" and especially when we find him quoting approvingly the broad proposition of Carl Wedl : "The fundamental character of cancer is that of a malformed (aborted) and degenerating new formation of connective tissue."

Entertaining such views, and studying merely the elementary forms of the growth, and not their secondary arrangement, Mr. Laurence's conclusion appears the necessary result of the facts in his possession when he says : "That the results afforded by the microscope must take *a* position, but not an exclusive and overbalancing one, in the series of data which are to serve us as the premises for our conclusion," as to the cancerous nature of a given growth.

Chapter 4th is devoted to colloid cancer, which has lately been so profoundly investigated by Rokitansky. The question of the cancerous nature of these growths is yet *sub judice.* "In our present state of knowledge, it will be best to consider it as a form of cancer. Subsequent research may one day definitely settle the question."

Chapter 5th considers the subject epithelioma, concerning which the opinion is expressed, that "*Epithelioma is a local disease (quite distinct from cancer), and if it is completely removed before any affection of the lymphatic glands, the patient becomes permanently cured.*"

We forbear any lengthy comments upon this opinion, with which we cannot possibly agree, for although the existence of innocent epitheliomata is undoubted, epitheliomata resulting from the influence of the law of analogous formation upon a cancerous growth, appear to be no less well established. Our object in this article has rather been to present our readers with a succinct account of the author's views than to enter into a controversy with any of them with which we do not agree. Such a discussion would occupy more space than we can at present devote to it. On the whole, we commend Mr. Laurence's work to the favourable consideration of American surgeons. However we may differ from him upon certain points, we feel convinced that he is upon the right path. If our knowledge of cancer is to be progressive, careful anatomical investigation, among other means of study, must not be neglected. For ourselves, we feel convinced that the establishment of the doctrine of the homology of cancer which Carl Wedl proclaims, and at which Mr. Laurence hints, will open a new era in the study of pathology. J. J. W.